PATENT
YOR920030206

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of	:	Larry Shungwei Mok
Serial Number	:	10/784,624
Filing Date	:	02/23/2004
Examiner	:	Tho V. Duong
Group Art Unit	:	3753
For	:	HEAT DISSIPATION INTERFACE FOR SEMICONDUCTOR CHIP STRUCTURES

Sir:

In response to the Official Action dated August 25, 2006, please amend the above-identified application as follows:

In the Drawings:

Please insert the enclosed corrected drawings into this Application. The pages are labeled as "Replacement Pages."

In the Claims:

Please amend Claims 1 – 9 as set forth in the Appendix attached hereto.

REMARKS

Formal Drawings are enclosed. These are marked as "Replacement Pages" as noted above. They contain all of the features found in the informal drawings that were filed initially with the application. No new features/matter is present in these drawings.

The Examiner is respectfully requested to reconsider his rejection of Claims 1-9 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims were originally presented in accordance with the format approved in the In re Jepson case. Applicant has changed to format to reflect that the invention is embodied in the wording following the word "comprising."

The format for Claims 7 – 9 has been changed to more accurately define the invention.

The bases for the language changes in Claims 1 – 9 is found in the specification on page 4, line 1, to page 6, line 15.

The Examiner is respectfully requested to reconsider his rejection of Claims 1-6 under 35 U.S.C. §102(b) as anticipated by Gönner, et al. (U.S. 6,009,937 "'937").

The '937 patent does not disclose what the Examiner asserts that it does. The reference discloses soldering folded metal sheets ("meander-shaped ribbon") onto the grooves on a base plate. It does not disclose soldering the sheets to the beam members as the Examiner contends in the office action.

Applicant claims "...parallel beam members" which are spacers "...inserted between arms 6 and 7 of the U. The beam like member 12 is thicker than the sheet material material, and is made of a heat conducting material such as copper or aluminum...." The '937 patent does not disclose "beam members."

The '937 states at Column 4, lines 5 – 21:
"According to FIGS. 2, 5, 6, 7 and 8, the meander-shaped ribbon 3 or the U-shaped profiles 13 are fixed in the longitudinal slots 6 of the base plate 2 by means of straight, stretched pieces of wire 8 (illustrated in FIG. 8). The stretched pieces of wire 8 being clamped in between adjacent profile limbs 13 of the meander-shaped ribbons or profiles 13 respectively by way of permanent deforming in such a way that the meander ends 3c (in the region of the "troughs") or the lower parts of the profile limbs 13a, 13b are slightly bent outwardly near the web portion 13c in the longitudinal slots 6 at an angle of e.g. 5.degree., so that they are in contact with the inner surfaces of the dovetailed longitudinal slots 6.

According to FIGS. 2, 6 and 7, the pieces of wire 8 are clamped in between the profile limbs 13a, 13b at the bottom of the profiles 13 having a U-shaped cross-section, i.e. on the web portion 13c, and fixed firmly in the longitudinal slots 6."

The "wire" is used to press the metal sheets to the side walls of the grooves. This type of manufacturing method requires a solid base plate with grooves. As a result, heat conducts to the base plate, the walls of the grooves, and then the metal sheets through the solder joints between the groove walls and the metal sheets. The metal sheets are fixed by the grooves and cannot be moved. The beam members are not the primary heat conduction means.

In the instant application, the metal sheets are bonded to the beam member as one heat dissipating unit which is soldered to a heat pipe (or multiple heat pipes). The entire heat dissipating unit is therefore connected thermally through heat pipes. Heat conducts from the heat source which is connected on one end of the heat pipes to the heat dissipating unit and there is no need to use a solid base plate.

The Examiner is respectfully requested to reconsider his rejection of Claim 7 under 35 U.S.C. §103(a) as being unpatentable over Gönner, et al. (U.S. 6,009,937 " '937") in view of Lee, et al. (U.S. 6,745,824 " '824").

The '824 patent describes a special type of heat dissipation device. At Column 1, line 58, the reference provides a summary of the necessary elements of the device. It states:

"In order to achieve the objects set out above, a heat dissipation device of the present invention includes a heat sink, a plurality of heat pipes, a frame and a fan. Each heat pipe has a lower first connecting portion and an upper second connecting portion. The heat sink includes a base, and a plurality of parallel fins attached on the base. The base comprises a top plate, and defines a hermetically sealed chamber. A plurality of apertures is defined in one side wall of the base, the apertures receiving the first connecting portions of the heat pipes. A plurality of through holes is transversely defined through the plurality of fins of the heat sink, the through holes receiving the second connecting portions of the heat pipes. The frame includes an upper plate, and two side plates depending from the upper plate. A pair of arms depends from respective opposite ends of a bottom portion of each side plate, the arms securing the frame on the heat sink. In operation, working liquid in the chamber transfers heat to the top plate by phase transition. The working liquid also transfers heat to the second connecting portions of the heat pipes by phase transition."

Applicant respectfully submits the following two points: 1. The '937 patent does <u>not</u> disclose the elements of the claimed invention as asserted by Examiner in view of the

comments presented above. Thus one predicate for the rejection is totally without foundation making the rejection erroneous; 2. In view of the necessary elements that must be present in the '824 device for it to be operational, there is no basis to combine the two references.

Along with the plurality of heat pipes, the '824 device requires a heat sink, a fan and many other elements that are not needed in the present invention and which would be counterproductive if combined with the device disclosed in the '937 patent.

In order to analyze the propriety of the Examiner's rejections in this case, a review of the pertinent applicable law relating to 35 U.S.C. §103 is warranted. The Examiner has applied the Gönner, et al. and Lee, et al. references discussed above using selective combinations to render obvious the invention.

The Court of Appeals for the Federal Circuit has set guidelines governing such application of references. These guidelines are, as stated are found in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ, 543, 551 :

> When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself.

A representative case relying upon this rule of law is Uniroyal, Inc. v. Rudkin-Wiley Corn., 837 F.2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988). The district court in Uniroyal found that a combination of various features from a plurality of prior art references suggested the claimed invention of the patent in suit. The Federal Circuit in its decision found that the district court did not show, however, that there was any teaching or suggestion in any of the references, or in the prior art as a whole, that would lead one with ordinary skill in the art to make the combination. The Federal

Circuit opined:

> Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 USPQ 2d at 1438, citing Lindemann, 730 F.2d 1452, 221 USPQ 481, 488 (Fed. Cir. 1984).]

The Examiner in his application of the cited references is improperly picking and choosing. The rejection is a piecemeal construction of the invention. Such piecemeal reconstruction of the prior art patents in light of the instant disclosure is contrary to the requirements of 35 U.S.C. §103.

> The ever present question in cases within the ambit of 35 U.S.C. §103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's application of references in this case, because the Examiner did in fact pick and choose so much of the Lee, et al. reference with respect to "disclosing a heat dissipating device that has a plurality of heat pipes entering through and...device" to support the rejection and did not cover completely or accurately in the Office Action the full scope of what these varied references fairly suggest to one skilled in the art.

Further, the Federal Circuit has stated that the Patent Office bears the burden of establishing obviousness. It held this burden can only be satisfied by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the reference.

> Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys., 732 F.2d at 1577,221 USPQ at 933. [837 F.2d at 1075, USPQ 2d at 1599]

The Court concluded its discussion of this issue by stating that teachings or references can be combined only if there is some suggestion or incentive to do so.

In the present case, the skilled artisan, viewing the references would not be directed toward Applicant's device. There can reasonably be no device such as Applicant's emanating from the Gönner, et al. and Lee, et al. references as the structures of the devices disclosed in the two references are different. There is no proper basis to combine them.

The Examiner is respectfully requested to reconsider his rejection of Claim 9 under 35 U.S.C. §103(a) as being unpatentable over Gönner, et al. and Lee, et al. as applied to Claim 7, and further in view of Liu (US 2003/0019610A1).

The Liu, et al. reference discloses a rapidly self-heat-conductive heat-dissipating module, wherein a rapidly self-heat-conductive heat-dissipating module has two heatsink sets which are overlapped. At least one heat convection super conductive tubes are engaged with the two heatsink sets. One heatsink set is used to absorb heat from a heat source and the other one serves to dissipate heat. A heat-dissipating fan blows air to the two heatsink sets for increasing heat-dissipating efficiency.

The particular configuration of the Liu unit again includes elements not found in Applicant's invention. The Examiner is again citing an element found in Liu to the exclusion of what the reference teaches as a whole. The rejection is clearly "hindsight." Applicant respectfully submits that the '937 and '824 references do not disclose what he Examiner asserts that they do disclose. For all of the reasons stated above, the skilled artisan would not combine the Liu reference with the others.

Since the structure, manufacturing methods, and heat conduction paths are different, combining '937 and '824 patents will not give the heat dissipating device Applicant describes in the instant application.

Applicants have attempted in this response to include language limitations to specifically define the invention and to clear up any ambiguities that may have existed in the wording heretofore. Applicants believe that the amended claims are in a

form which should result in their allowability. If there are additions which could result in the claims being allowed, Applicants' attorney would be pleased to speak with the Examiner by phone concerning such action at a mutually agreeable time and will cooperate in any way possible.

The Commissioner is requested to grant a two month extension of time within which to respond to the above-cited Official Action. A check payable to the Commissioner of Patents and Trademarks in the amount of $450.00 is enclosed. In the event additional fees are required, the Commissioner is authorized to charge Deposit Account 02-1651.

The Commissioner is further requested to address all future correspondence to the undersigned at 15 Alameda Place, Mount Vernon, NY 10552.

Thomas A. Beck
Registration No. 20,816

15 Alameda Place

Mount Vernon, NY 10552

I hereby certify that this amendment response is being mailed via the United States Postal Service, first class mail, postage prepaid on the date indicated below addressed to Commissioner of Patents & Trademarks, Post Office Box 1450, Alexandria, VA 22313-1450

Date: January 25, 2007